ABSTRACT

Two rare earth-doped optical fibers are connected in series and used to amplify input light. A splitter is installed between these two rare earth-doped optical fibers. The input light is monitored by having the portion of the input light that is branched off, by the splitter received by a photodiode. Excitation light output from a laser light source is guided by optical couplers and supplied to the above rare earth-doped optical fibers. A control circuit controls the output light level and, at the same time, stops the output from the laser light source when the input light level drops below a specified threshold value. The gain of the first stage rare earth-doped optical fiber while excitation light is being supplied is larger than the loss that occurs due to branching of the input light by the splitter.